

MERL-1531

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor: Smaragdis

Title: METHOD AND SYSTEM FOR SEPARATING MULTIPLE SOUND  
SOURCES FROM MONOPHONIC INPUT WITH NON-NEGATIVE MATRIX  
FACTOR DECONVOLUTION

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INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents  
PO Box 1450  
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Pursuant to 37 C.F.R. §1.56(a), Applicant hereby cites the  
following documents (copies enclosed) listed on the attached copy  
of Form PTO-1449.

This Information Disclosure Statement is filed in accordance with the paragraph of 37 CFR §1.97 checked below:

  X   1.97(b) This Information Disclosure Statement is filed:

- (1) Within three months of the filing date of a national application; OR
- (2) Within three months of the date of entry of the national stage of an international application; OR
- (3) Before the mailing of a first Office Action on the merits.

No fee or certification is required.

     1.97(c) This Information Disclosure Statement is filed after the period specified in paragraph (b) above, but before the mailing date of either:

- (1) A Final Action under 37 CFR 1.113; OR
- (2) A Notice of Allowance under 37 CFR 1.311;

AND is accompanied by either:

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\_\_\_\_\_ the Certification under 37 CFR  
1.97(e) as set out below; OR

\_\_\_\_\_ the fee of \$240.00 under 37 CFR  
1.17(p).

\_\_\_ 1.97(d) This Information Disclosure Statement is filed  
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(1) a Final action under 37 CFR 1.113; OR

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by:

(1) the Certification under 37 CFR 1.97(e) as  
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(2) Petition is hereby made under 37 CFR  
1.97(d) for consideration of this  
Information Disclosure Statement; AND,

(3) Authorization to charge the petition fee  
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If this Information Disclosure Statement is being filed  
under 37 CFR 1.97(c) or 1.97(d), the undersigned Attorney hereby

certifies that:

— each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing date of this Statement;

**or**

— no item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, or to the knowledge of the undersigned Attorney after making reasonable enquiry, was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing date of this Statement.

MERL-1531

Authorization is hereby given to charge the indicated fee(s)  
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Respectfully submitted,

\_\_\_\_\_  
MITSUBISHI ELECTRIC RESEARCH LABORATORIES

By: \_\_\_\_\_

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Enclosures

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Form PTO-1449 (modified 2/91)	U.S. DEPT OF COMMERCE Patent and Trademark Office	Attorney Docket Number: MERL-1531	Serial Number:
<b>INFORMATION DISCLOSURE CITATION</b>  (Use several sheets if necessary)		Applicant: Smaragdis	
		Filing date: Herewith	Group art area:

## U.S. PATENT DOCUMENTS

Exam- iner Initial	Patent number	Date	Name	Class	Subclass	Filing date if appropriate

## FOREIGN PATENT DOCUMENTS

	Document number	Date	Country	Class	Subclass	Translation

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

1.	Casey, M.A. and A. Westner (2000) "Separation of Mixed Audio Sources by Independent Subspace Analysis", in Proceedings of the International Computer Music Conference, Berlin, Germany, August, 2000.
2.	Lee, D.D. and H.S. Seung. (1999 "Learning the parts of objects with nonnegative matrix factorization". In Nature, 401:788 791, 1999.
3.	Lee, D.D. and H.S. Seung (2000) "Algorithms for Non-Negative Matrix Factorization". In Neural Information Processing Systems 2000, pp. 556-562.
4.	Smaragdis, P. and J.C. Brown. (2003) "Non-Negative Matrix Factorization for Polyphonic Music Transcription", in IEEE Workshop on Applications of Signal Processing to Audio and Acoustics. New Paltz, NY, October 2003.
Examiner: _____ Date Considered: _____	
EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP .609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the applicant.	